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THE EFFECTS OF RACE INTERMINGLING.

By C. B. DAVENPORT.

(*Read April 13, 1917.*)

The problem of the effects of race intermingling may well interest us of America, when a single state, like New York, of 9,000,000 inhabitants contains 840,000 Russians and Finns, 720,000 Italians, 1,000,000 Germans, 880,000 Irish, 470,000 Austro-Hungarians, 310,000 of Great Britain, 125,000 Canadians (largely French), and 90,000 Scandinavians. All figures include those born abroad or born of two foreign-born parents. Nearly two thirds of the population of New York State is foreign-born or of foreign or mixed parentage. Even in a state like Connecticut it is doubtful if 2 per cent. of the population are of pure Anglo-Saxon stock for six generations of ancestors in all lines. Clearly a mixture of European races is going on in America on a colossal scale.

Before proceeding further let us inquire into the meaning of "race." The modern geneticists' definition differs from that of the systematist or old fashioned breeder. A race is a more or less pure bred "group" of individuals that differs from other groups by at least one character, or, strictly, a genetically connected group whose germ plasm is characterized by a difference, in one or more genes, from other groups. Thus a blue-eyed Scotchman belongs to a different race from some of the dark Scotch. Strictly, as the term is employed by geneticists they may be said to belong to different elementary species.

Defining race in this sense of elementary species we have to consider our problem: What are the results of race intermingling, or miscegenation? To this question no general answer can be given. A specific answer can, however, be given to questions involving specific characters. For example, if the question be framed: what are the results of hybridization between a blue-eyed race (say

Swede) and a brown-eyed race (say South Italian)? The answer is that, since brown eye is dominant over blue eye, all the children will have brown eyes; and if two such children inter-marry brown and blue eyes will appear among their children in the ratio of 3 to 1.

Again, if one parent be white and the other a full-blooded negro then the skin color of the children will be about half as dark as that of the darker parent; and the progeny of two such mulattoes will be white, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and full black in the ratio of 1:4:6:4:1.

Again, if one parent belong to a tall race—like the Scotch or some Irish—and the other to a short race, like the South Italians, then all the progeny will tend to be intermediate in stature. If two such intermediates intermarry then very short, short, medium, tall and very tall offspring may result in proportions that can not be precisely given, but about which one can say that the mediums are the commonest and the more extreme classes are less frequented, the more they depart from mediocrity. In this case of stature we do not have to do with merely one factor as in eye color, or two as in negro skin color, but probably many. That is why all statures seem to form a continuous curve of frequency with only one modal point, that of the median class.

What is true of physical traits is no less true of mental. The offspring of an intellectually well developed man of good stock and a mentally somewhat inferior woman will tend to show a fair to good mentality; but the progeny of the intermarriage of two such will be normal and feeble-minded in the proportion of about 3 to 1. If one parent be of a strain that is highly excitable and liable to outbursts of temper while the other is calm then probably all the children will be excitable, or half of them, if the excitable parent is not of pure excitable stock. Thus, in the intellectual and emotional spheres the traits are no less "inherited" than in the physical sphere.

But I am aware that I have not yet considered the main problem of the consequence of race intermixture, considering races as differing by a number of characters. First, I have to say that this subject has not been sufficiently investigated; but we may, by inference from studies that have been made, draw certain conclusions. Any well-established abundant race is probably well adjusted to its conditions and its parts and functions are harmoniously adjusted.

Take the case of the Leghorn hen. Its function is to lay eggs all the year through and never to waste time in becoming broody. The brooding instinct is, indeed, absent; and for egg farms and those in which incubators are used such birds are the best type. The Brahma fowl, on the other hand, is only a fair layer; it becomes broody two or three times a year and makes an excellent mother. It is well adapted for farms which have no incubators or artificial brooders. Now I have crossed these two races; the progeny were intermediate in size. The hens laid fairly well for a time and then became broody and in time hatched some chicks. For a day or two they mothered the chicks, and then began to roost at night in the trees and in a few days began to lay again, while the chicks perished at night of cold and neglect. The hybrid was a failure both as egg layer and as a brooder of chicks. The instincts and functions of the hybrids were not harmoniously adjusted to each other.

Turning to man, we have races of large tall men, like the Scotch, which are long-lived and whose internal organs are well adapted to care for the large frames. In the South Italians, on the other hand, we have small short bodies, but these, too, have well adjusted viscera. But the hybrids of these or similar two races may be expected to yield, in the second generation, besides the parental types also children with large frame and inadequate viscera—children of whom it is said every inch over 5' 10" is an inch of danger; children of insufficient circulation. On the other hand, there may appear children of short stature with too large circulatory apparatus. Despite the great capacity that the body has for self adjustment it fails to overcome the bad hereditary combinations.

Again it seems probable, as dentists with whom I have spoken on the subject agree, that many cases of overcrowding or wide separation of teeth are due to a lack of harmony between size of jaw and size of teeth—probably due to a union of a large-jawed, large-toothed race and a small-jawed, small-toothed race. Nothing is more striking than the regular dental arcades commonly seen in the skulls of inbred native races and the irregular dentations of many children of the tremendously hybridized American.

Not only physical but also mental and temperamental incompatibilities may be a consequence of hybridization. For example, one

often sees in mulattoes an ambition and push combined with intellectual inadequacy which makes the unhappy hybrid dissatisfied with his lot and a nuisance to others.

To sum up, then, miscegenation commonly spells disharmony—disharmony of physical, mental and temperamental qualities and this means also disharmony with environment. A hybridized people are a badly put together people and a dissatisfied, restless, ineffective people. One wonders how much of the exceptionally high death rate in middle life in this country is due to such bodily maladjustments; and how much of our crime and insanity is due to mental and temperamental friction.

This country is in for hybridization on the greatest scale that the world has ever seen.

May we predict its consequences? At least we may hazard a prediction and suggest a way of diminishing the evil. Professor Flinders-Petrie in his essay on "Revolutions of Civilization" suggests that the rise and fall of nations is to be accounted for in this fashion. He observes that the countries that developed the highest type of civilization occur on peninsulas—Egypt surrounded on two sides by water and on two sides by the desert and by tropical heat, Greece, and Rome on the Italian peninsula. It is conceded that such peninsulas are centers of inbreeding. Flinders-Petrie concluded that a period of prolonged inbreeding leads to social stratification. In such a period a social harmony is developed, the arts and sciences flourish but certain consequences of inbreeding follow, particularly, the spread of feeble-mindedness, epilepsy, melancholia and sterility. These weaken the nation, which then succumbs to the pressure of stronger, but less civilized, neighbors. Foreign hordes sweep in; miscegenation takes place, disharmonies appear, the arts and sciences languish, physical and mental vigor are increased in one part of the population and diminished in another part and finally after selection has done its beneficent work a hardier, more vigorous people results. In them social stratification in time follows and a high culture reappears; and so on in cycles. The suggestion is an interesting one and there is no evident biological objection to it. Indeed the result of hybridization after two or three generations is great variability. This means that some new combinations will be

formed that are better than the old ones; also others that are worse. If selective annihilation is permitted to do its beneficent work, then the worse combinations will tend to die off early. If now new intermixing is stopped and eugenical mating ensues, consciously or unconsciously, especially in the presence of inbreeding, strains may arise that are superior to any that existed in the unhybridized races. This, then, is the hope for our country; if immigration is restricted, if selective elimination is permitted, if the principle of the inequality of generating strains be accepted and if eugenical ideals prevail in mating, then strains with new and better combinations of traits may arise and our nation take front rank in culture among the nations of ancient and modern times.

COLD SPRING HARBOR, N. Y.,
April 13, 1917.